```
     (FILE 'HOME' ENTERED AT 14:07:59 ON 22 APR 2003)

     FILE 'CAPLUS, USPATFULL' ENTERED AT 14:08:12 ON 22 APR 2003
L1       399667 FILE CAPLUS
L2       139474 FILE USPATFULL
     TOTAL FOR ALL FILES
L3       539141 S UVA OR UVB OR (ULTRA? (5A) RADIATION?) OR ("UV")
L4       397217 FILE CAPLUS
L5       117033 FILE USPATFULL
     TOTAL FOR ALL FILES
L6       514250 S L3 NOT "360"
L7       398292 FILE CAPLUS
L8       125418 FILE USPATFULL
     TOTAL FOR ALL FILES
L9       523710 S L3 NOT "370"
L10      397703 FILE CAPLUS
L11      123154 FILE USPATFULL
     TOTAL FOR ALL FILES
L12      520857 S L3 NOT "380"
L13      398550 FILE CAPLUS
L14      127190 FILE USPATFULL
     TOTAL FOR ALL FILES
L15      525740 S L3 NOT "390"
L16      393189 FILE CAPLUS
L17       98127 FILE USPATFULL
     TOTAL FOR ALL FILES
L18      491316 S L6 AND L9 AND L12 AND L15
L19           0 FILE CAPLUS
L20           0 FILE USPATFULL
     TOTAL FOR ALL FILES
L21           0 S L18 AND ("370" OR "380" OR "390") AND ("310" OR "320")
L22           0 FILE CAPLUS
L23           0 FILE USPATFULL
     TOTAL FOR ALL FILES
L24           0 S L18 AND ("370" OR "380" OR "390")
L25           0 FILE CAPLUS
L26           0 FILE USPATFULL
     TOTAL FOR ALL FILES
L27           0 S L18 AND ("370" )
L28          10 FILE CAPLUS
L29           4 FILE USPATFULL
     TOTAL FOR ALL FILES
L30          14 S L18 AND ("370NM" )
L31          25 FILE CAPLUS
L32           9 FILE USPATFULL
     TOTAL FOR ALL FILES
L33          34 S L18 AND ("370NM" OR "380NM" OR "390NM")
L34         416 FILE CAPLUS
L35        3012 FILE USPATFULL
     TOTAL FOR ALL FILES
L36        3428 S RERADIAT? OR RE-RADIAT?
L37          61 FILE CAPLUS
L38         372 FILE USPATFULL
     TOTAL FOR ALL FILES
L39         433 S L36 AND L3
L40           0 FILE CAPLUS
L41           5 FILE USPATFULL
     TOTAL FOR ALL FILES
L42           5 S L39 AND (SUBBLOCK? OR SUN-BLCO? OR SUNSCREEN? OR SUN-SCREEN?)
L43         416 FILE CAPLUS
L44        3012 FILE USPATFULL
     TOTAL FOR ALL FILES
L45        3428 S RERADIAT? OR RE-RADIAT?
L46           0 FILE CAPLUS
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L47             8 FILE USPATFULL
     TOTAL FOR ALL FILES
L48             8 S L45 AND (SUBBLOCK? OR SUN-BLCO? OR SUNSCREEN? OR SUN-SCREEN?)
L49             0 FILE CAPLUS
L50             3 FILE USPATFULL
     TOTAL FOR ALL FILES
L51             3 S L48 NOT L42

=> s l45 and ("370nm" or "380nm" or "390nm")
L52             0 FILE CAPLUS
L53             0 FILE USPATFULL

TOTAL FOR ALL FILES
L54             0 L45 AND ("370NM" OR "380NM" OR "390NM")
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o the passenger cabin where it is not wanted. Shades or **sun screens** positioned adjacent inside surfaces of windows, such as those taught by Miller, U.S. patent No. 4,790,591, provide protection against deterioration of interior passenger cabin components, such as plastics, that are susceptible to ultraviolet light and reduces some heat build-up by reflecting ultraviolet light back through the window to the outside. However, not only do such shades and **sun screens** also absorb solar energy and dissipate such absorbed energy inside the passenger cabin as heat, but much of the solar radiation reflected by the shades or **sun screens** back to the window is also absorbed by the window and results in adding to heat build-up in the passenger cabin, as described above.

ACCESSION NUMBER:	2000061397 PCTFULL ED 20020515
TITLE (ENGLISH):	VEHICLE CABIN COOLING SYSTEM
TITLE (FRENCH):	SYSTEME DE REFROIDISSEMENT D'HABITACLE DE VEHICULE
INVENTOR(S):	FARRINGTON, Robert, B.; ANDERSON, Ren
PATENT ASSIGNEE(S):	MIDWEST RESEARCH INSTITUTE; FARRINGTON, Robert, B.; ANDERSON, Ren
LANGUAGE OF PUBL.:	English
DOCUMENT TYPE:	Patent
PATENT INFORMATION:	

NUMBER	KIND	DATE
WO 2000061397	A1	20001019

DESIGNATED STATES

L189 ANSWER 1 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1994:517308 CAPLUS
DN 121:117308
TI **Sunscreens**: Development, Evaluation, and Regulatory Aspects (Sansukurinzai to Hifu Kagaku: Koshohin no Kenkyu Kaihatsu to Hyokaho oyobi Kisei ni tsuite)
AU Lowe, Nicholas J.; **Shaath, Nadim A.**; Editors
CS Japan
SO (1993) Publisher: (Fragrance Journal Ltd., Tokyo, Japan), 720 pp. .yen.16,000. Translated from: Eng
DT Book
LA Japanese
CC 62-4 (Essential Oils and Cosmetics)
Section cross-reference(s): 8
AB Unavailable
ST book **sunscreen** regulatory
IT **Sunscreens**
(development and evaluation and regulatory aspects of)

L189 ANSWER 2 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1991:171019 CAPLUS
DN 114:171019
TI Photodegradation of **sunscreen** chemicals: Solvent considerations
AU **Shaath, Nadim A.**; Fares, Hani M.; Klein, Kenneth
CS Kato Worldwide, Mount Vernon, NY, 10553, USA
SO Cosmetics & Toiletries (1990), 105(12), 41-4
CODEN: CTOIDG; ISSN: 0361-4387
DT Journal
LA English
CC 62-4 (Essential Oils and Cosmetics)
AB The degree to which commonly used **sunscreens**, e.g., benzophenone-3 and benzophenone-8, would degrade when subjected to UV light and the effect of solvents on the photodegrdn. were studied. The **sunscreens** were evaluated at the 200-ppm levels at the irradn. level 5 min. erythemal dose. Salicylates, Me anthranilate, octocrylene and benzophenones showed excellent photostability. The dibenzoylmethanes and octyldimethyl p-aminobenzoate showed significant degrdn. in nonpolar solvents (mineral oil) and no degrdn. in polar solvents (EtOH/H2O mixt.). The **sunscreens** that showed photostability lacked any significant solvent shifts after irradn.
ST solvent **sunscreen** photolysis
IT Photolysis
(of **sunscreens**, solvents effect on)
IT Solvent effect
(on photolysis of **sunscreens**)
IT Paraffin oils
RL: BIOL (Biological study)
(photolysis of **sunscreens** in relation to)
IT Sunburn and Suntan
(**sunscreens**, photolysis of, solvents effect on)
IT 64-17-5, Ethanol, uses and miscellaneous 110-27-0, Isopropyl myristate
RL: USES (Uses)
(photolysis of **sunscreens** in relation to)
IT 118-56-9 118-60-5, Octyl salicylate 131-53-3, Benzophenone-8 131-57-7, Benzophenone-3 134-09-8, Menthyl anthranilate 6197-30-4, Octocrylene 21245-02-3 63250-26-0 96436-87-2, Octyl p-methoxycinnamate 112725-59-4, Butylmethoxydibenzoylmethane
RL: RCT (Reactant); RACT (Reactant or reagent)
(photolysis of, solvents effect on)

L189 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1991:171003 CAPLUS
DN 114:171003

TI Stability and efficacy of **UV-filters**
AU **Shaath, Nadim A.**
CS Felton Worldwide, USA
SO Seifen, Oele, Fette, Wachse (1991), 117(2), 45-7
CODEN: SOFWAF; ISSN: 0173-5500
DT Journal; General Review
LA English
CC 62-0 (Essential Oils and Cosmetics)
AB A review with 12 refs., summarizing the author's own work on the effects of solvents on the UV absorbance properties of **sunscreen** compds. and their stability to photolysis.
ST **sunscreen** efficacy stability review
IT Sunburn and Suntan
(**sunscreens**, efficacy and stability of)

L189 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1990:558420 CAPLUS
DN 113:158420
TI Interpretation and evaluation: spectroscopic data of **sunscreens**
AU **Shaath, Nadim A.**; Griffin, Peter M.; Andemicael, Gideon I.; Agrapidis-Paloympis, Louise E.
CS Felton Worldwide Inc., Brooklyn, NY, USA
SO Cosmetic Science and Technology Series (1990), 10(Sunscreens: Dev., Eval., Regul. Aspects), 537-607
CODEN: CSTSEV; ISSN: 0887-6541
DT Journal; General Review
LA English
CC 62-0 (Essential Oils and Cosmetics)
AB A review with 4 refs. Mol. structure, mol. formula, mol. wt., and operating conditions used to obtain the spectra of **sunscreens** are listed and discussed.
ST review **sunscreen** UV spectra
IT Ultraviolet and visible spectra
(of **sunscreens**)
IT Sunburn and Suntan
(**sunscreens**, spectroscopic data of)

L189 ANSWER 5 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1990:558419 CAPLUS
DN 113:158419
TI Modern analytical techniques in the **sunscreen** industry
AU **Shaath, Nadim A.**; Griffin, Peter M.; Andemicael, Gideon I.
CS Felton Worldwide Inc., Brooklyn, NY, USA
SO Cosmetic Science and Technology Series (1990), 10(Sunscreens: Dev., Eval., Regul. Aspects), 505-36
CODEN: CSTSEV; ISSN: 0887-6541
DT Journal; General Review
LA English
CC 62-0 (Essential Oils and Cosmetics)
Section cross-reference(s): 80
AB A review with 26 refs. on methods for anal. of **sunscreen** chems. and **sunscreen** cosmetic formulations.
ST review **sunscreen** analysis
IT Sunburn and Suntan
(**sunscreens**, methods for anal. of)

L189 ANSWER 6 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1990:538299 CAPLUS
DN 113:138299
TI Quality control of **sunscreens**
AU **Shaath, Nadim A.**
CS Felton Worldwide Inc., Brooklyn, NY, USA
SO Cosmetic Science and Technology Series (1990), 10(Sunscreens: Dev., Eval., Regul. Aspects), 483-503

CODEN: CSTSEV; ISSN: 0887-6541
DT Journal; General Review
LA English
CC 62-0 (Essential Oils and Cosmetics)
AB A review with 15 refs. discussing the various **sunscreens** used, their phys. and chem. properties, and anal.
ST review **sunscreen** quality control
IT Quality control
(of **sunscreens**)
IT Sunburn and Suntan
(**sunscreens**, quality control of)

L189 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1990:538296 CAPLUS
DN 113:138296
TI The chemistry of **sunscreens**
AU **Shaath, Nadim A.**
CS Felton Worldwide Inc., Brooklyn, NY, USA
SO Cosmetic Science and Technology Series (1990), 10(Sunscreens: Dev., Eval., Regul. Aspects), 211-33
CODEN: CSTSEV; ISSN: 0887-6541
DT Journal; General Review
LA English
CC 62-0 (Essential Oils and Cosmetics)
AB A review with 28 refs. discussing the classification of **sunscreens**, mechanism of action and **UV filters** used, etc.
ST review **sunscreen**
IT Sunburn and Suntan
(**sunscreens**, chem. of)

L189 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1990:484619 CAPLUS
DN 113:84619
TI Cosmetic Science and Technology Series Vol. 10: **Sunscreens**: Development, Evaluation, and Regulatory Aspects
AU Lowe, Nicholas J.; **Shaath, Nadim A.**; Editors
CS USA
SO (1990) Publisher: (Dekker, New York, N. Y.), 624 pp.
DT Book
LA English
CC 62-4 (Essential Oils and Cosmetics)
AB Unavailable
ST book **sunscreen**
IT Sunburn and Suntan
(**sunscreens**, development and evaluation of)

L189 ANSWER 9 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1990:484601 CAPLUS
DN 113:84601
TI Evolution of modern **sunscreen** chemicals
AU **Shaath, Nadim A.**
CS Felton Worldwide Inc., Brooklyn, NY, USA
SO Cosmetic Science and Technology Series (1990), 10(Sunscreens: Dev., Eval., Regul. Aspects), 3-35
CODEN: CSTSEV; ISSN: 0887-6541
DT Journal; General Review
LA English
CC 62-0 (Essential Oils and Cosmetics)
AB A review with 71 refs. discussing the use of various **sunscreen** chems. and structure-activity studies.
ST review **sunscreen**
IT Sunburn and Suntan
(**sunscreens**)

L189 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1990:83824 CAPLUS
DN 112:83824
TI Analysis of **sunscreen** chemicals. Separation and identification techniques
AU **Shaath, Nadim A.**
CS Felton Worldwide, Brooklyn, NY, USA
SO Cosmetics & Toiletries (1989), 104(11), 75-7, 80, 82, 84
CODEN: CTOIDG; ISSN: 0361-4387
DT Journal; General Review
LA English
CC 62-0 (Essential Oils and Cosmetics)
AB A review with 13 refs. on TLC, gas chromatog., and HPLC for the anal. of **sunscreens** in formulations.
ST review **sunscreen** analysis
IT Sunburn and Suntan
(**sunscreens**, anal. of)

L189 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1988:81792 CAPLUS
DN 108:81792
TI The effect of solvents on the ultraviolet absorbance of **sunscreens**
AU Agrapidis-Paloympis, Louise E.; Nash, Robert A.; **Shaath, Nadim A.**
CS St. John's Univ., Jamaica, NY, 11439, USA
SO Journal of the Society of Cosmetic Chemists (1987), 38(4), 209-21
CODEN: JSCCA5; ISSN: 0037-9832
DT Journal
LA English
CC 62-4 (Essential Oils and Cosmetics)
AB The efficacy of **sunscreens** is often affected by the solvents in which they are dissolved. The UV absorption spectra of 13 UVA and UVB **sunscreens** were detd. in 12 solvents of varying polarity and cosmetic interest. Changes in both the wavelengths of max. absorbance (.lambda.max) and molar absorptivity (.epsilon.) were obsd. for many of the **sunscreen**-solvent systems studied. Obsd. hypsochromic and bathochromic shifts in .lambda.max for a no. of **sunscreens** were related to their structure and polarity. Polar solvents shifted the .lambda.max of polar **sunscreens** to shorter wavelengths and shifted less polar **sunscreens** to longer wavelengths. Ortho-substituted **sunscreen** chem., such as salicylates and anthranilates experienced a min. or no UV absorbance shift. With the exception of p-aminobenzoic acid, most **sunscreens** showed increased absorbance in both polar and nonpolar solvents and decreased absorbance in semi-polar solvents, such as hexylene glycol and C12-15 alcs. benzoate. The results of this study should aid the cosmetic chemist in selecting appropriate solvents and vehicles for **sunscreen** chem.
ST UV absorption **sunscreen** solvent
IT Paraffin oils
RL: BIOL (Biological study)
(UV absorption of **sunscreens** in relation to)
IT Ultraviolet and visible spectra
(of **sunscreens**, solvent effect on)
IT Solvent effect
(on UV spectra of **sunscreens**)
IT Molecular structure-property relationship
(UV spectra, of **sunscreens**)
IT Sunburn and Suntan
(**sunscreens**, UV spectra of, solvent effect on)
IT 65-85-0D, C12-15 alkyl esters
RL: BIOL (Biological study)
(UV absorption by **sunscreens** in relation to)
IT 107-41-5 110-27-0, Isopropyl myristate 110-54-3, properties 110-80-5 111-77-3 142-91-6, Isopropyl palmitate

RL: BIOL (Biological study)
(UV absorption of **sunscreens** in relation to)
IT 57-55-6, properties 64-17-5, properties
RL: PRP (Properties)
(UV absorption of **sunscreens** in relation to)
IT 118-56-9, Homomenthyl salicylate 131-53-3, Dioxybenzone 131-57-7, Oxybenzone 134-09-8, Menthyl anthranilate 150-13-0, PABA 4065-45-6, Sulisobenzone 5466-77-3 6197-30-4 6969-49-9, Octyl salicylate 10377-95-4 58817-05-3, Octyl dimethyl-p-aminobenzoate 58882-17-0 112725-59-4
RL: PROC (Process)
(UV absorption of, as **sunscreens**, solvent effect on)

L189 ANSWER 12 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1987:502422 CAPLUS
DN 107:102422
TI On the theory of ultraviolet absorption by **sunscreen** chemicals
AU **Shaath, Nadim A.**
CS Felton Worldwide, Brooklyn, NY, 11237, USA
SO Journal of the Society of Cosmetic Chemists (1987), 38(3), 193-207
CODEN: JSCCA5; ISSN: 0037-9832
DT Journal; General Review
LA English
CC 62-0 (Essential Oils and Cosmetics)
AB A review discussion with 31 refs. on a simplified qual. approach suitable for prediction of the direction of wavelength shifts in the UV spectra of **sunscreens**. Wavelength shifts at max. absorption due to changes in the chem. structure of a **sunscreen**, or to solvent or pH effects in a cosmetic formulation, are discussed.
ST review **sunscreen** UV absorption
IT Sunburn and Suntan
(**sunscreens**, UV absorption by)

L189 ANSWER 13 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1987:464607 CAPLUS
DN 107:64607
TI The analysis of **sunscreen** chemicals. Part 1. Quality control procedures for **sunscreen** chemicals
AU **Shaath, Nadim A.**
CS Felton Worldwide, Brooklyn, NY, USA
SO Cosmetics & Toiletries (1987), 102(3), 69-72, 76-8, 80-1
CODEN: CTOIDG; ISSN: 0361-4387
DT Journal; General Review
LA English
CC 62-0 (Essential Oils and Cosmetics)
AB A review with 27 refs. on the quality control procedures required for the anal. of **sunscreen** raw materials.
ST review **sunscreen** quality control
IT Sunburn and Suntan
(**sunscreens**, quality control of, methods for)

L189 ANSWER 14 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1987:464605 CAPLUS
DN 107:64605
TI Encyclopedia of UV absorbers for **sunscreen** products
AU **Shaath, Nadim A.**
CS Felton Worldwide, Brooklyn, NY, USA
SO Cosmetics & Toiletries (1987), 102(3), 21-39
CODEN: CTOIDG; ISSN: 0361-4387
DT Journal; General Review
LA English
CC 62-0 (Essential Oils and Cosmetics)
AB A review with 6 refs. discussing the phys. snd chem. properties, identification, toxicity, etc., of UV absorbers for **sunscreen**

products.
ST review **sunscreen**; UV absorber review
IT Sunburn and Suntan
(**sunscreens**, UV absorbers, encyclopedia of)

L189 ANSWER 15 OF 17 CAPLUS COPYRIGHT 2003 ACS
AN 1986:212986 CAPLUS
DN 104:212986
TI The chemistry of **sunscreens**
AU **Shaath, Nadim A.**
CS Felton Int., Brooklyn, NY, USA
SO Cosmetics & Toiletries (1986), 101(3), 55-62, 64, 67-70
CODEN: CTOIDG; ISSN: 0361-4387
DT Journal; General Review
LA English
CC 62-0 (Essential Oils and Cosmetics)
AB A review with 37 refs. on chem. and photochem. properties of **sunscreens**. Design of **sunscreen** chems., their anal., and classification are discussed.
ST review **sunscreen**
IT Sunburn and Suntan
(**sunscreens**, chem. of)

L189 ANSWER 16 OF 17 COMPENDEX COPYRIGHT 2003 EEI
AN 1991(2):18600 COMPENDEX DN 910214855
TI Evolution of **sunscreen** chemicals.
AU **Shaath, Nadim A.** (Felton Worldwide, New York, NY, USA)
MT Proceedings of the ACS Division of Polymeric Materials: Science and Engineering.
ML Washington, DC, USA
MD 26 Aug 1990-31 Aug 1990
SO Polymeric Materials Science and Engineering, Proceedings of the ACS Division of Polymeric Materials Science and Engineering v 63.Publ by ACS, Books & Journals Division, Washington, DC, USA.p 598-599
CODEN: PMSEDG ISSN: 0743-0515
PY 1990
MN 13632
DT Conference Article
TC Application; General Review
LA English
AB The first reported use of **sunscreens** in the world was in 1928 in the United States with the commercial introduction of an emulsion containing two **sunscreening** chemicals, benzyl salicylate and benzyl cinnamate.**Sunscreens** have originated from both academic and industrial research laboratories with completely diverse uses.The cost, safety and marketability of the new filter have had a dramatic impact on the evolution of the current approved list of **sunscreen** chemicals regardless of their efficacy, degree and nature of their protection.11 Refs.
CC 804 Chemical Products; 461 Biotechnology; 741 Optics & Optical Devices; 913 Production Planning & Control
CT *ESTERS:Emulsions; ULTRAVIOLET RADIATION:Filters; CONSUMER PRODUCTS:Raw Materials; BIOLOGICAL MATERIALS:Skin
ST **SUNSCREEN** CHEMICALS; CHEMICAL **UV FILTERS**; COSMETICS

L189 ANSWER 17 OF 17 TOXCENTER COPYRIGHT 2003 ACS
AN 1987:136676 TOXCENTER
CP Copyright 2003 ACS
DN CA10708064605M
TI Encyclopedia of UV absorbers for **sunscreen** products
AU **Shaath, Nadim A.**
CS Felton Worldwide, Brooklyn, NY, USA.
SO Cosmetics & Toiletries, (1987) Vol. 102, No. 3, pp. 21-39.

CODEN: CTOIDG. ISSN: 0361-4387.
CY UNITED STATES
DT Journal
FS CAPLUS
OS CAPLUS 1987:464605
LA English
ED Entered STN: 20011116
Last Updated on STN: 20021029
AB A review with 6 refs. discussing the phys. snd chem. properties, identification, toxicity, etc., of UV absorbers for **sunscreen** products.
CC 62-0
ST Miscellaneous Descriptors
review **sunscreen**; UV absorber review

=>

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     FILE 'MEDLINE, CAPLUS, KOSMET, SCISEARCH' ENTERED AT 15:13:41 ON 22 APR
     2003
L1          2515 FILE MEDLINE
L2          9157 FILE CAPLUS
L3          1585 FILE KOSMET
L4          2420 FILE SCISEARCH
     TOTAL FOR ALL FILES
L5         15677 S SUNSCREEN? OR SUNBLOCK? OR SUN-SCREEN? OR SUN-BLOCK? OR (UV?(
L6          2142 FILE MEDLINE
L7          2496 FILE CAPLUS
L8             3 FILE KOSMET
L9          2473 FILE SCISEARCH
     TOTAL FOR ALL FILES
L10         7114 S RERADIAT? OR RE-RADIAT? OR RE-DIRECT? OR REDIRECT?
L11            0 FILE MEDLINE
L12            0 FILE CAPLUS
L13            0 FILE KOSMET
L14            0 FILE SCISEARCH
     TOTAL FOR ALL FILES
L15            0 S L5 AND L10

     FILE 'USPATFULL, PCTFULL, CAPLUS, PHIC, PHAR' ENTERED AT 15:16:31 ON 22
     APR 2003
L16          161 FILE USPATFULL
L17           85 FILE PCTFULL
L18            0 FILE CAPLUS
L19            0 FILE PHIC
L20            0 FILE PHAR
     TOTAL FOR ALL FILES
L21          246 S L15
L22           13 FILE USPATFULL
L23           11 FILE PCTFULL
L24            0 FILE CAPLUS
L25            0 FILE PHIC
L26            0 FILE PHAR
     TOTAL FOR ALL FILES
L27           24 S L5 (3S) L10
                 E SHAATH/AU
L28            0 FILE USPATFULL
L29            1 FILE PCTFULL
L30           38 FILE CAPLUS
L31            0 FILE PHIC
L32            0 FILE PHAR
     TOTAL FOR ALL FILES
L33           39 S E3 OR E6-E8

     FILE 'AGRICOLA, ALUMINIUM, ANABSTR, APOLLIT, AQUIRE, BABS, BIOCOMMERCE,
     BIOTECHNO, CABA, CAOLD, CAPLUS, CBNB, CEABA-VTB, CEN, CERAB, CIN,
     COMPENDEX, CONFSCI, COPPERLIT, CORROSION, ENCOMPLIT, ENCOMPLIT2, FEDRIP,
     GENBANK, INSPEC, INSPHYS, INVESTEXT, IPA, ...' ENTERED AT 15:26:56 ON 22
     APR 2003
L34            0 FILE AGRICOLA
L35            0 FILE ALUMINIUM
L36            0 FILE ANABSTR
L37            0 FILE APOLLIT
L38            0 FILE AQUIRE
L39            0 FILE BABS
L40            0 FILE BIOCOMMERCE
L41            0 FILE BIOTECHNO
L42            0 FILE CABA
L43            0 FILE CAOLD
L44           38 FILE CAPLUS
L45            0 FILE CBNB
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L46	0	FILE	CEABA-VTB
L47	0	FILE	CEN
L48	0	FILE	CERAB
L49	0	FILE	CIN
L50	1	FILE	COMPENDEX
L51	1	FILE	CONFSCI
L52	0	FILE	COPPERLIT
L53	0	FILE	CORROSION
L54	0	FILE	ENCOMPLIT
L55	0	FILE	ENCOMPLIT2
L56	0	FILE	FEDRIP
L57	0	FILE	GENBANK
L58	0	FILE	INSPEC
L59	0	FILE	INSPHYS
L60	0	FILE	INVESTEXT
L61	1	FILE	IPA
L62	0	FILE	JICST-EPLUS
L63	1	FILE	KOSMET
L64	0	FILE	METADEX
L65	0	FILE	NAPRALERT
L66	0	FILE	NIOSHTIC
L67	0	FILE	NTIS
L68	0	FILE	PAPERCHEM2
L69	0	FILE	PASCAL
L70	0	FILE	PROMT
L71	0	FILE	RAPRA
L72	0	FILE	RUSSCI
L73	2	FILE	SCISEARCH
L74	0	FILE	STANDARDS
L75	0	FILE	TULSA
L76	0	FILE	TULSA2
L77	0	FILE	USAN
L78	0	FILE	WELDASEARCH
L79	0	FILE	WSCA
L80	0	FILE	ADISCTI
L81	0	FILE	ADISINSIGHT
L82	0	FILE	ADISNEWS
L83	0	FILE	BIOBUSINESS
L84	3	FILE	BIOSIS
L85	0	FILE	CANCERLIT
L86	0	FILE	DGENE
L87	0	FILE	DIOGENES
L88	1	FILE	DRUGB
L89	0	FILE	DRUGLAUNCH
L90	0	FILE	DRUGMONOG2
L91	0	FILE	DRUGNL
L92	0	FILE	DRUGU
L93	0	FILE	DRUGUPDATES
L94	0	FILE	EMBAL
L95	1	FILE	EMBASE
L96	0	FILE	ESBIOBASE
L97	0	FILE	IFIPAT
L98	0	FILE	LIFESCI
L99	0	FILE	MEDICONF
L100	1	FILE	MEDLINE
L101	0	FILE	NUTRACEUT
L102	0	FILE	PCTGEN
L103	0	FILE	PHAR
L104	0	FILE	PHARMAML
L105	0	FILE	PHIC
L106	0	FILE	PHIN
L107	0	FILE	SYNTHLINE
L108	3	FILE	TOXCENTER
L109	0	FILE	USPATFULL

L110 0 FILE USPAT2
TOTAL FOR ALL FILES
L111 53 S L33
L112 0 FILE AGRICOLA
L113 0 FILE ALUMINIUM
L114 0 FILE ANABSTR
L115 0 FILE APOLLIT
L116 0 FILE AQUIRE
L117 0 FILE BABS
L118 0 FILE BIOCOMMERCE
L119 0 FILE BIOTECHNO
L120 0 FILE CABA
L121 0 FILE CAOLD
L122 15 FILE CAPLUS
L123 0 FILE CBNB
L124 0 FILE CEABA-VTB
L125 0 FILE CEN
L126 0 FILE CERAB
L127 0 FILE CIN
L128 1 FILE COMPENDEX
L129 0 FILE CONFSCI
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L131 0 FILE CORROSION
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L133 0 FILE ENCOMPLIT2
L134 0 FILE FEDRIP
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L145 0 FILE NTIS
L146 0 FILE PAPERCHEM2
L147 0 FILE PASCAL
L148 0 FILE PROMT
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L150 0 FILE RUSSCI
L151 0 FILE SCISEARCH
L152 0 FILE STANDARDS
L153 0 FILE TULSA
L154 0 FILE TULSA2
L155 0 FILE USAN
L156 0 FILE WELDASEARCH
L157 0 FILE WSCA
L158 0 FILE ADISCTI
L159 0 FILE ADISINSIGHT
L160 0 FILE ADISNEWS
L161 0 FILE BIOBUSINESS
L162 0 FILE BIOSIS
L163 0 FILE CANCERLIT
L164 0 FILE DGENE
L165 0 FILE DIOGENES
L166 0 FILE DRUGB
L167 0 FILE DRUGLAUNCH
L168 0 FILE DRUGMONOG2
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L170 0 FILE DRUGU
L171 0 FILE DRUGUPDATES
L172 0 FILE EMBAL

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L175            0 FILE IFIPAT
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L182            0 FILE PHARMAML
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L184            0 FILE PHIN
L185            0 FILE SYNTHLINE
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L187            0 FILE USPATFULL
L188            0 FILE USPAT2
     TOTAL FOR ALL FILES
L189           17 S L111 AND L5

     FILE 'CAPLUS, COMPENDEX, TOXCENTER' ENTERED AT 15:33:01 ON 22 APR 2003
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L192            1 FILE TOXCENTER
     TOTAL FOR ALL FILES
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L194            0 FILE CAPLUS
L195            0 FILE COMPENDEX
L196            0 FILE TOXCENTER
     TOTAL FOR ALL FILES
L197            0 S L193 AND (L10 OR DISCIPAT? OR REFLEC?)
```

L353 ANSWER 52 OF 59 USPATFULL

DETD A sensor 522 could potentially be distracted by all of the reflected rays. Therefore, in accordance with a feature of the present invention, a **UV** absorbing **filter** 524 removes all rays except for the desired ones 520 **reradiated** from material 518 in the the reference grid 507. Note that visible light rays 526 passing through the film 509 and bearing the film image is also passed by the filter 524 and detected by the sensor 522.

PI US 5745143 19980428

ATION IN THE RANGE OF ABOUT
295-315 NM AND BLOCK UVA RADIATION IN THE RANGE OF ABOUT 365-395 NM.

INVENTOR(S): Fisher; Gary J., Ypsilanti, MI, US
Kang; Sewon, Ann Arbor, MI, US
Voorhees; John J., Ann Arbor, MI, US
PATENT ASSIGNEE(S): Unassigned
AGENT: Hopgood, Calimafde Judlowe & Mondolino, 60 East 42nd Street, New York, NY, 10165, US

	NUMBER	PK	DATE
PATENT INFORMATION:	US 2002028185	A1	20020307
APPLICATION INFORMATION:	US 2001-900535		20010706

	NUMBER	DATE
PRIORITY APPLN. INFO.:	US 2000-216244P	20000706 (Provisional)
FAMILY INFORMATION:	US 2002028185	20020307

DOCUMENT TYPE: Utility
Patent Application - First Publication
FILE SEGMENT: CHEMICAL
APPLICATION
NUMBER OF CLAIMS: 10 12 Figure(s).

DESCRIPTION OF FIGURES:

FIG. 1 depicts an overlay of the wavelength distributions of the noon summer sun, a solar simulator used in the following experiments, and an FS40 brand UV lamp filtered with a Kodacell or WG320 filter.

FIGS. 2A and 2B depict photomicrographs of stained human in vivo skin samples from subjects exposed to varying amounts of solarsimulated radiation, the amounts being defined by the resulting MED.

FIGS. 3A, 3B, and 3C depict the dose-dependent induction of collagenase (MMP-1) (3A) and the 92 kDa gellatinase (3B) as a function of MED, and the reduction in procollagen biosynthesis (3C) also as a function of MED, when using the solar simulator having the radiation profile as shown in FIG. 1.

FIG. 4A depicts our results in determining the wavelengthrelated dependence of collagenase induction.

FIG. 4B shows the wavelengths transmitted through each of a number of different filters.

FIG. 5 shows overlaid the separate wavelengths we obtained using our solar simulator and various filters.

FIGS. 6A, 6B, and 6C depicts the induction of the 92 kDa gelatinase as a function of UV wavelength for various wavelength regions.

FIG. 7 depicts graphically the contribution of each of UVA and UVB to the induction of the 92 kDa gelatinase.

FIG. 8 depicts the variation in the irradiance of the sun between noon and either early morning or late afternoon.

FIG. 9 depicts the UV absorbance of two specific suncreen compositions.

FIG. 10 depicts the induction of collagenase mRNA as a function of UV wavelength in the UVA region.

FIG. 11 depicts the induction of collagenase mRNA as a function of UV wavelength in the UVB region.

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SUMM [0006] Present **sunscreen** formulations now include a mixture of separate compounds for absorbing UVA and UVB radiation. Commercially approved preparations include a UVB blocker, such as a p-methoxycinnamate or an aminobenzoate, and a UVA blocker, such as a benzone or an anthranilate. These compounds generally absorb the incoming UV photon and **reradiate** a lower energy photon. While typically less cosmetically desirable, physical blockers, such as zinc oxide, generally provide better protection, at least in part because most people do not apply a sufficient amount of **sunscreen**, or

apply it unevenly. In theory, an amount of 2 mg/cm.sup.2 of **sunscreen** per skin area is to be applied to maintain the sun protection factor (SPF) value, although the amount typically applied in practice by individuals in recreational settings is much less.

DETD [0034] It may be difficult to formulate a cosmetically acceptable **sunscreen** for the upper UVA1 region. As described by N. A. Shaath in **Sunscreens** (op cit.; Chpt. 15), chemical **sunscreens**, as opposed to physical **sunscreens** like zinc oxide and titanium oxide, absorb a photon and **reradiate** the energy as a longer wavelength: very low energy wavelengths over 800 nm as heat (which is small compared with the heat input to the skin from the sun); intermediate energy wavelengths in the visible region (fluorescence), and/or low UV wavelengths (380-450 nm). A **sunscreen** that appears to fluoresce may be cosmetically unacceptable. Additionally, physical **sunscreens** can be cosmetically unacceptable because of their whitish appearance. Based on our findings, it will be important to assure that the energy is not **reradiated** in the region of >360-400 nm, for both UVA **sunscreens** and UVB **sunscreen**. Thus, a presently available **sunscreen**, whether a UVB or a UVA blocker, may **reradiate** in the region of >360 nm to 400 nm that we have found is harmful to the collagen matrix of the skin.

DETD [0035] To formulate a desirable **sunscreen**, a chemist of ordinary skill in the **sunscreen** art will first make estimates of the structure of the compound required to absorb in the desired wavelength region, the structure typically focusing on the number and type of conjugated bonds, the presence and/or absence of electron-stabilizing groups, and the like. The candidate compound is then tested in a spectrophotometer to determine at which wavelength(s) it absorbs light (UV here), and then, preferably according to this invention, at what wavelengths the absorbed light is **re-radiated**. As noted, the vehicle/medium in which the compound is dispersed will affect the wavelengths absorbed. For example, for acidic compounds dispersed in an alkaline medium, the medium assists in the formation of anions that tend to increase delocalization of electrons, thereby decreasing the energy required for the electronic transition in the UV spectrum (a "bathochromic" shift to longer wavelengths, here towards the 400 nm range). Likewise, a not strongly polar compound may have an excited state that adds to the molecule's polarity, in which case a polar solvent stabilizes the transition state and a bathochomic shift to longer wavelengths occurs. The more efficient the electron delocalization, the higher the extinction coefficient of the compound. Although it is most desirable to have an absorbtion maximum .lambda..sub.max and extinction coefficient (.epsilon.) not affected by the solvent(s), the medium may be used advanatageously. A molecule may absorb and **re-radiate** only a few times before it is destroyed, or it may be able to do this many times before being degraded. The efficiency of a candidate **sunscreen** molecule at absorbing light of a desired wavelength is its extinction coefficient. Further, for a compound that is perhaps less efficient that desirable, it is beneficial to put as much of the compound in the composition to the extent that it does not cause burning or stinging of the skin, is not toxic, and the like. Still further, as mentioned above, these organic compounds typically **re-radiate** the energy absorbed, sometimes in the infrared, and sometimes in the visible (and sometimes in the low UV region, which we have found is detrimental). While many would not consider a fluorescing compound to be cosmetically acceptable, children, teens, and others may likely consider such a compound as stylish. Further, the use of a compound that **re-radiates** in the visible spectrum would aid in determining whether a sufficient amount of the compound has been applied, and whether the coverage is complete (e.g., non-covered areas would not fluoresce). Additionally, if the fluorescence is not very strong, it is

less likely that it would be seen in full sunlight.

CLM What is claimed is:

8. In the manufacture of a **sunscreen** by determining the absorbance of a candidate compound for particular wavelengths when the candidate compound is dispersed in a given medium, the improvement comprising determining whether said candidate compound **re-radiates** in the region of greater than about 360 nm up to about 400 nm upon exposure to sunlight.

ACCESSION NUMBER:	2002:47994 USPATFULL		
TITLE:	UVA (> 360-400) and UVB (300-325) specific sunscreens		
INVENTOR(S):	Fisher, Gary J., Ypsilanti, MI, UNITED STATES Voorhees, John J., Ann Arbor, MI, UNITED STATES Kang, Sewon, Ann Arbor, MI, UNITED STATES		
	NUMBER	KIND	DATE
PATENT INFORMATION:	US 2002028185	A1	20020307
APPLICATION INFO.:	US 2001-900535	A1	20010706 (9)
	NUMBER		DATE
PRIORITY INFORMATION:	US 2000-216244P		20000706 (60)
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	APPLICATION		
LEGAL REPRESENTATIVE:	Hopgood, Calimafde, Judlowe & Mondolino, 60 East 42nd Street, New York, NY, 10165		
NUMBER OF CLAIMS:	10		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	17 Drawing Page(s)		
LINE COUNT:	445		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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(FILE 'HOME' ENTERED AT 15:12:52 ON 22 APR 2003)

FILE 'MEDLINE, CAPLUS, KOSMET, SCISEARCH' ENTERED AT 15:13:41 ON 22 APR 2003

L1 2515 FILE MEDLINE
L2 9157 FILE CAPLUS
L3 1585 FILE KOSMET
L4 2420 FILE SCISEARCH
TOTAL FOR ALL FILES
L5 15677 S SUNSCREEN? OR SUNBLOCK? OR SUN-SCREEN? OR SUN-BLOCK? OR (UV?(
L6 2142 FILE MEDLINE
L7 2496 FILE CAPLUS
L8 3 FILE KOSMET
L9 2473 FILE SCISEARCH
TOTAL FOR ALL FILES
L10 7114 S RERADIAT? OR RE-RADIAT? OR RE-DIRECT? OR REDIRECT?
L11 0 FILE MEDLINE
L12 0 FILE CAPLUS
L13 0 FILE KOSMET
L14 0 FILE SCISEARCH
TOTAL FOR ALL FILES
L15 0 S L5 AND L10

FILE 'USPATFULL, PCTFULL, CAPLUS, PHIC, PHAR' ENTERED AT 15:16:31 ON 22 APR 2003

L16 161 FILE USPATFULL
L17 85 FILE PCTFULL
L18 0 FILE CAPLUS
L19 0 FILE PHIC
L20 0 FILE PHAR
TOTAL FOR ALL FILES
L21 246 S L15
L22 13 FILE USPATFULL
L23 11 FILE PCTFULL
L24 0 FILE CAPLUS
L25 0 FILE PHIC
L26 0 FILE PHAR
TOTAL FOR ALL FILES
L27 24 S L5 (3S) L10
E SHAATH/AU
L28 0 FILE USPATFULL
L29 1 FILE PCTFULL
L30 38 FILE CAPLUS
L31 0 FILE PHIC
L32 0 FILE PHAR
TOTAL FOR ALL FILES
L33 39 S E3 OR E6-E8

FILE 'AGRICOLA, ALUMINIUM, ANABSTR, APOLLIT, AQUIRE, BABS, BIOCOMMERCE, BIOTECHNO, CABA, CAOLD, CAPLUS, CBNB, CEABA-VTB, CEN, CERAB, CIN, COMPENDEX, CONFSCI, COPPERLIT, CORROSION, ENCOMPLIT, ENCOMPLIT2, FEDRIP, GENBANK, INSPEC, INSPHYS, INVESTEXT, IPA, ...' ENTERED AT 15:26:56 ON 22 APR 2003

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L41 0 FILE BIOTECHNO
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L43 0 FILE CAOLD
L44 38 FILE CAPLUS

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L53	0	FILE	CORROSION
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L55	0	FILE	ENCOMPLIT2
L56	0	FILE	FEDRIP
L57	0	FILE	GENBANK
L58	0	FILE	INSPEC
L59	0	FILE	INSPHYS
L60	0	FILE	INVESTEXT
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L64	0	FILE	METADEX
L65	0	FILE	NAPRALERT
L66	0	FILE	NIOSHTIC
L67	0	FILE	NTIS
L68	0	FILE	PAPERCHEM2
L69	0	FILE	PASCAL
L70	0	FILE	PROMT
L71	0	FILE	RAPRA
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L73	2	FILE	SCISEARCH
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L77	0	FILE	USAN
L78	0	FILE	WELDASEARCH
L79	0	FILE	WSCA
L80	0	FILE	ADISCTI
L81	0	FILE	ADISINSIGHT
L82	0	FILE	ADISNEWS
L83	0	FILE	BIOBUSINESS
L84	3	FILE	BIOSIS
L85	0	FILE	CANCERLIT
L86	0	FILE	DGENE
L87	0	FILE	DIOGENES
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L90	0	FILE	DRUGMONOG2
L91	0	FILE	DRUGNL
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L93	0	FILE	DRUGUPDATES
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L108	3	FILE	TOXCENTER

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L130            0 FILE COPPERLIT
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     TOTAL FOR ALL FILES
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     COMPENDEX, CONFSCI, COPPERLIT, CORROSION, ENCOMPLIT, ENCOMPLIT2, FEDRIP,
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L217            0 FILE CORROSION
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L320	0	FILE	WELDASEARCH
L321	0	FILE	WSCA
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L323	0	FILE	ADISINSIGHT
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TOTAL FOR ALL FILES
L353 59 S L5 (5S) (L10 OR DISCIPAT?)